

Teaching objective science

In Pennsylvania, Kansas, and elsewhere, strident voices are insisting that “alternative theories” and evolution be taught side-by-side and be given equal weight in science classrooms. Many of us who work and teach in the sciences find this request to be unacceptable. We are convinced that this insistence does not stem from any attempt to achieve educational “balance”, as its proponents assert. For example, Steve Abrams, who chairs the Kansas State Board of Education, has made it clear that he thinks a balancing act is impossible; he has been widely quoted as asserting that one can believe in the Bible or one can “believe in” evolution, but not both. In this view, science and religion are incompatible.

Throughout history, however, many of the world’s foremost scientists have also been people of faith. For example, one of the most fundamental scientific ideas about the origin of the universe – the Big Bang theory – was proposed in 1927, not by a physicist, but by Georges Lemaitre, a Belgian priest! Cardinal Paul Poupard, leader of the Pontifical Council for Culture in the Vatican, has recently gone on record as stating that “religion risks turning into ‘fundamentalism’ if it ignores scientific reason”. A quick glimpse at the web reveals multiple sites on Theistic Evolution and, as Edward B Davis notes in his thoughtful article in *American Scientist* (May/June 2005), the spectrum of religious responses to evolution is much broader now than it was during the Scopes Trial era of the 1920s.

Opponents of the scientific principles of evolutionary theory also have, at times, portrayed false statements as facts. They have incorrectly asserted that no one has ever directly observed either the process of evolution in any living organism or the appearance of a brand new species. They have insisted that skepticism for evolution is “common” within the scientific community, and that there exists a strong and growing movement among scientists to reject evolutionary theory. This assertion is demonstrably false; in autumn of 2005, a petition in support of evolutionary theory and opposing Intelligent Design was signed by more than 7000 scientists from around the world in only 4 days; during the following week, an additional 3000–4000 names were added. In contrast, it required 4 years for the Discovery Institute to accumulate just over 400 signatures from the relatively few scientists who support Intelligent Design (<http://shovelbums.org/content/view/156/527/>). One might therefore reasonably conclude that fewer than 4% of today’s scientists are in strong disagreement with the theory of evolution.

As Richard Dawkins wrote in the November 2005 issue of *Natural History*, real scientists always know what it would take to change their minds. In contrast, science skeptics in general, and evolution skeptics in particular, have already made up their minds. No degree of logic, new knowledge, or information will lead them to alter their mindset.

Thus, despite the recent court ruling in Pennsylvania, efforts to dilute, to misinterpret, and to misrepresent science will not cease. Resistance to evolutionary science is a particularly hot-button issue, and it will probably morph into a lower profile “teach the controversy” approach nationwide. Abrams, for example, was quick to assert that the Pennsylvania outcome had no relevance to Kansas, although his Board of Education has recently altered Kansas science standards to include supernatural explanations for observed phenomena. Luckily, however, attorneys for the Pennsylvania plaintiffs have made Kansas one of the first stops on their speaking tour.

I view the recent actions of the Kansas State Board of Education as attempts to micromanage the dissemination of information and knowledge, and as efforts to create the false impression of controversy when in fact no *scientific* controversy exists. The impact of these and similar efforts nationwide, if they succeed, will be to reduce both the quality and the quantity of science education that can be transmitted in American classrooms, and to reduce the competitiveness of American science in the increasingly competitive global arena.

I therefore want to restate sentiments expressed in a recent Guest Editorial by former ESA President Bill Schlesinger (*Front Ecol Environ* 2005; 3(10): 519): the scientific community *must not* shrink from making clear and forceful statements about science if we are to help inform our elected and appointed leaders and return once again to a time when sound and verifiable scientific knowledge is used as the logical foundation for our children’s education, our system of laws, and our governmental policies.



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